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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,128	11/15/2006	Anthony Richard Pratt	2001145.120US1	3127
23483	7590	12/22/2009		
WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			EXAMINER CORRIELUS, JEAN B	
			ART UNIT 2611	PAPER NUMBER
			NOTIFICATION DATE 12/22/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/595,128	Applicant(s) PRATT ET AL.	
	Examiner Jean B. Corrielus	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-8,10-22,97 and 98 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8,10-22,97 and 98 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/25/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. Applicant's response has overcome the 101 rejection.

Claim Rejections - 35 USC § 112

2. Applicant's response has overcome the outstanding 112 rejection.

Claim Objections

3. Applicant's response has overcome the outstanding claim objection.

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: there is no antecedent basis in the specification for "computer readable storage" as recited in claim 97.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by McDonald et al US Patent No. 6,301,306.

As per claim 1, McDonald et al discloses a method and apparatus fig. 5 comprising modulating in modulator 518 a carrier signal generated by source 515 by a subcarrier modulation signal note output of modulator 509, Note that McDonald teaches that a QPSK modulation scheme is used to generate the subcarrier modulated

Art Unit: 2611

signal, as known in the art a QPSK modulated signal comprises a number of m amplitude levels where $m > 2$, note col. 10, lines 53-54 (see US Patent No. 6,052,701, col. 3, lines 60-61; US Patent No. 7,272,416, col. 8, lines 12-13 and US Patent No. 7,583,759, col. 7, lines 41-44).

As per claim 4, as known in the art QPSK modulation uses 4 amplitude levels (note the above US references mentioned in the rejection of claim 1 above).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al 6,301,306 in view of Dahan et al US patent Application Publication No. 2002/0070799.

As per claims 5-6, as applied to claim 1 above, McDonald et al teaches every feature of the claimed invention but does not explicitly teach the use of triangular wave as a basis waveform. As shown in at least in the drawing (see front page of the US Patent application publication No. 2002/0070799 and note input to summer 35), it is well known in the art to use a triangular wave as a basis waveform. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in McDonald et al in order to provide McDonald et al with the capability to generate desired carrier signal necessary to modulate the signal prior to transmission because, as known in the

Art Unit: 2611

art, prior to any transmission, a signal has to properly modulated with a carrier so as to ensure proper transmission.

As per claim 7, the combined references teaches every feature of the claimed invention, but does not explicitly teach the additional limitations of selecting the waveform according to a desired power distribution characteristics of the transmission signal. However, selecting the waveform according to a desired power distribution characteristics of the transmission signal would have been in the purview of one skill in the art. Given that it would have been obvious to one skill in the art to select the waveform according to a desired power distribution characteristics of the transmission signal so as to ensure that negative effect of the transmission medium is compensated for in order to improved integrity of the transmission system.

9. Claims 8, 10, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al 6,301,306 in view of Poklemba et al US Patent Application publication No. 20030141938.

As per claim 8, as applied to claim 1 above, McDonald et al teaches every feature of the claimed invention but does not explicitly teach the further limitation of providing at least two mutually orthogonal subcarrier modulation signals. Poklemba et al teaches a carrier generator for generating two carrier signals $\cos wct$ and $\sin wct$ separated by a phase shift of 90 degrees. Given that fact, one skill in the art would have been motivated to generate a pair of carrier signals in the manner taught by Poklemba et al so that interference can be minimize since orthogonal carriers will ensure that the signals are separated from each other in such a way no interference can be created.

Art Unit: 2611

As per claim 10, Poklemba et al teaches that the carriers are separated by a predetermined phase, 90 degrees. One skill in the art would have been motivated to use such a phase shift for the reason provided with respect to claim 8 above.

As per claim 11, the Poklemba et al show an inphase carrier $\cos\omega t$ and an inphase carrier $\sin\omega t$ see the drawing. One skill in the art would have been motivated to use such carriers in McDonald et al for the same reasons provided above with respect to claim 8.

As per claim 12, it would have been obvious to one skill in the art to determine the multiple amplitudes of the inphase and quadrature carriers to maintain a constant transmission signal envelope and the motivation to do so would have been to ensure that the signal level is maintained within the operational range of the amplifier that may be used to transmit the signal.

10. Claims 13-22 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al 6,301,306.

As per claim 13, as applied to claim 1 above, McDonald et al teaches every feature of the claimed invention but does not explicitly teach the further limitation of deriving the amplitudes from a plurality of phase states. However, selecting the amplitudes from a plurality of phase states would have been in the purview of one skill in the art as such would have enabled the amplitude of the signal that fit predetermined criterion so as to generate only desired modulated signal.

Art Unit: 2611

As per claim 14, providing phase states that are equally angularly distributed around the unit circle would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 15, providing amplitudes of equal duration would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 16, providing amplitudes of unequal duration would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 17, it would have been obvious to one skill in the art to quantize the durations according to an associated clock signal so as to satisfy requirement of the system.

As per claim 18, it would have been obvious to one skill in the art to define the associated phase states according to mutually orthogonal axes so as to ensure that interference between the carrier signals is minimized.

As per claim 19, it would have been obvious to one skill in the art to associate the phase states with ranging signals so that the system can be used in radars that use ranging signals.

As per claim 20, it would have been obvious to one skill in the art to use unequal dwell times in the phase states for the reason provided above with respect to claim 13.

As per claim 21, it would have been obvious to one skill in the art to use a first dwell time for a first group of phase states and a second group of dwell time for a second group of phase states for the same reason provided above with respect to claim 13.

As per claim 22, see claim 17.

As per claim 97, it would have been obvious to one skill in the art to use implement the invention using a computer readable medium in order to be able to implement the invention via software so as to reduce production cost since hardware use would have been minimized.

11. Claim 98 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al 6,301,306 in view of Dafesh et al US patent No. 7,120,198.

As applied to claim 1 above, McDonald et al teaches every feature of the claimed invention but does not explicitly teach modulating a ranging signal using a subcarrier. However, as evidence by Dafesh col. 6, lines 43-45, it is well known in the art to modulate a ranging signal using a subcarrier. Given that it would have been obvious to one skill in the art to have modified McDonald by modulating a ranging signal using a subcarrier in order to produce desired signal not being capable of being intercepted by unauthorized users.

Response to Arguments

12. Applicant's arguments filed 11/25/09 have been fully considered but they are not persuasive. It is alleged that the specification as filed provide proper antecedent basis for "computer readable storage", recited in claim 97. However, applicant fails to indicate where in the instant application antecedent basis can be found for the underlined subject matter.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/
Primary Examiner, Art Unit 2611